

## Thinking on Teacher's Digital Literacy in Vocational School in the Post COVID-19 Era — Taking Chinese Situation as an Example

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**Abstract:** The COVID-19 pandemic has changed the normal teaching model radically and online teaching and learning has turned into the primary model. In the post-pandemic era, exoteric and diversified teaching is the integration of multiple teaching models with various objects, contents, and demands, rather than an unsophisticated combination of traditional courses and online education. The practical characteristics vocational education makes it more complex to implement online learning than in other type of education like in the academic education. In addition to the teaching of professional theoretical knowledge, teachers were more bewildered by how to carry out online teaching in practice teaching which focuses on practical skills and practical working ability. And through the survey, the fact is that the level of teachers' ICT ability is different during the online teaching. In order to ensure the effectiveness of online-based teaching, to improve teachers' and students' digital literacy in a short time has become a very important challenge in pandemic as well as "post-pandemic era". This paper would analyze the needs of vocational college teachers' digital literacy in "post-pandemic era", as well as summarize the current situation of teachers' digital literacy in Chinese vocational colleges on the basis of existing surveys and give reflection from technical support, teachers' and students' digital literacy and practical community on the ways to improve teachers' digital literacy and online education in vocational education in the post pandemic era.

**Key word:** digital literacy, vocational education, teacher's professional development, post COVID-19 era

### 1. Introduction

Since January 2020, the Covid-19 pandemic has swept the world. Regular school teaching was forced to stop. In response to the impact of the pandemic on higher education, China's Ministry of Education issued a guideline on online teaching in early February, to urge universities across the country to "suspend classes but not teaching or studying". Under this initiative, universities across the country have organized the largest online teaching program in a very short time, with the largest number of courses and students. The teaching model has changed radically, online teaching and learning has turned into the primary model. In the post COVID-19 era, exoteric and diversified teaching is the integration of multiple teaching models with various objects, contents, and demands, rather than an unsophisticated combination of traditional courses and online education.

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Online teaching during the pandemic contains opportunities for educational innovation and teaching reform, such as students' self-growth, teachers' professional development and universities teaching reform, but it also brings great challenges to students, teachers and universities. Actually, in addition to the teaching of professional theoretical knowledge, teachers were more bewildered by how to carry out online teaching in practice teaching which focuses on practical skills and practical working ability, such as work-based learning, apprenticeship, practical learning, etc. during the epidemic period. Although the epidemic has prompted most of the vocational college teachers to carry out online teaching activities, the level of teachers' ICT ability is different. In a number of Chinese surveys, most teachers seemed to teach through the network platform as well as use lots of digital teaching resources, but they still follow the traditional teaching methods and evaluation standards. In order to ensure the effectiveness of online-based teaching, how to ensure that many teachers change their teaching roles to adapt to comprehensive online teaching has become a key element. How to improve teachers' and students' digital literacy in a short time has become a very important challenge in epidemic as well as "post-epidemic era".

## **2. Requirements of Information Literacy of Teacher in Vocational Education in the Post COVID-19 Era**

In 2020, China has successfully held "Two Sessions"<sup>1</sup> during the severe epidemic. The construction of teachers in vocational education was subjected to the People's further attention, which the ranking<sup>2</sup> raised from sixth last year to second this year. Meanwhile online education has become to the hot spots of education in two sessions for the first time. In China, a large number of information-based teaching infrastructures have been launched in large quantities, while many information-based platforms have responded positively and given support to education, also a large number of free online resources are available to the whole network. During the epidemic period, more than 2000 experimental projects in China's national virtual simulation experiment teaching project sharing platform were opened free, which covering 255 majors and 1561 courses in 41 professional categories.

Online education has developed in China for more than ten years, especially the COVID-19 situation has promoted the further development of online teaching. As a new teaching form, online education contains rich value of knowledge dissemination, educational innovation and emergency compensation. At present, epidemic in China is basically under control. At this stage, it has entered the post epidemic era. The so-called post epidemic era is especially the era after the New Coronavirus epidemic. In the post epidemic period, education presents the form of "double line teaching" that integrates online teaching and offline classroom. The large-scale online teaching during the pandemic is an information-based teaching practice, which improves the ability of teachers to use the online teaching platform, widens the channels for teachers to obtain high-quality teaching resources, and so that makes the classroom present a new form of integration of online teaching and offline classroom teaching.

In vocational education, the practical teaching, the teaching conditions of vocational colleges as well as the information literacy of teachers and students relatively limit the implementation of online teaching.

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<sup>1</sup> The two sessions are collectively referred to as the National People's Congress of the people's Republic of China and the Chinese people's Political Consultative Conference held over the years since 1959.

<sup>2</sup> The ranking here mean that during the "Two Sessions" many national hot issues would be discussed, such as economic, social development and education and so on. There are many hot spots in the field of education, and vocational education was second issue which was concerned by "Two sessions" this year.

## **2.1 The Characteristics and Requirements of Practical Teaching in Vocational Education Limit the Implementation of Online Teaching**

As a type of education, vocational education emphasizes “Teaching by doing, learning by doing”, vocational education does not always follow the logic from theory to practice. Vocational education aims to cultivate front-line skilled talents for the society. The main task of teaching is to cultivate students’ operational ability and skills through the combination teaching of theory and practice. Practical teaching is an important part of the whole teaching process, which is mainly realized by organizing students in a planned way through observation, experiment, training, practice and other teaching links under certain professional activity scenarios such as laboratory and practice place. However, online practical teaching activities can only be in a virtual environment, which cannot complete the face-to-face communication between teachers and students, which means that it is not possible for students to experience it personally and intuitively. Although some qualified colleges and universities use virtual simulation laboratories in their online teaching process, this kind of laboratory cannot be completed by all majors and any practical operation. Therefore, it is more complex to implement online learning in the field of vocational education than in other type of education especially in the academic education.

## **2.2 Information Literacy of Vocational School Teachers Is One of the Necessary Factors for Implementing Online Teaching**

Online teaching has brought great challenges to teachers. According to the survey of 13997 teachers in China by the teacher development center of Xiamen University, there are many challenges in teachers’ online teaching, such as psychological pressure, workload, learning and teaching technology, changing teaching concepts and teaching/learning habits. In the process of integrating online teaching into offline classroom teaching, teachers should not only qualified in internet education, but also face the challenge of reconstructing their teaching ability. Such as the ability to integrate information technology into teaching, which include the innovation of teaching concept, the improvement of teaching design and implementation ability, the enhancement of teaching evaluation ability and so on. Teachers should not only to obtain the professional and psychological quality that necessary in offline teaching, but also should own certain media literacy (like to identify, select and evaluate to guide the development of online teaching).

China has been promoting the in-depth integration of teachers’ information literacy and education, as well as encouraging teachers to use information technology to improve teaching quality, innovate teaching mode, make good use of high-quality digital resources by using flipped classroom and hybrid teaching. Teachers are required to actively adapt to new technological changes such as informatization and artificial intelligence to actively and effectively carry out their teaching. During the pandemic, some colleges and universities have conducted short-term training to enable teachers to quickly master online teaching skills, but from the feedback results of the survey, some teachers were not really fully prepared for online teaching. A survey of 1147 teachers from 28 undergraduate and higher vocational colleges across the country shows that the vast majority of the sampled teachers (85.7%) have initially possessed the basic ability of information-based teaching, but the proportion of teachers with high application level is relative low (14.3%) (Han & Ge, 2018). Although more than 75% of teachers are familiar with online learning platform software, realizing online teaching independently. However, there are still many inadaptable phenomena in online teaching during the epidemic, which result in poor effect of online teaching. The reason is that teachers did not understand the “Internet + education” thoroughly, and have not changed their

traditional teaching concepts to keep space with the era of “Internet plus education”. Another regrettable phenomenon is that information technology does not improve efficiency and effectiveness of teachers’ teaching, which causes a lot of workload. Nearly 40% of teachers spend more than 6 hours on online teaching work every day, and 13.6% among them spend more than 9 hours. According to the survey on the impact of technical tools on the smooth implementation of teachers’ online teaching during the epidemic, 63.64% of teachers think that the impact is so serious that they have to spend a lot of time to deal with the impact of technical tools. Teachers have owned certain information technology skills, but they still have to face many problems. These problems come from platform’s software and hardware and classroom interaction, such as platform software congestion and instability, network jam, loud noise and incomplete PowerPoint display, which make teacher cost lots of time to prepare for teaching every day (Hou, Liu & Lu, 2020). On the whole, the large-scale development of online teaching has not triggered a comprehensive teaching reform. The integration of online teaching and offline classroom teaching still remains in the reference of high-quality online teaching resources, and deep-seated teaching reform has not occurred (Chen, 2020).

### **2.3 Online Teaching Requires Students to Have Corresponding Learning Ability**

As the object of teaching, teaching also puts forward new requirements for students. Due to urgency of the epidemic, some colleges have no time to train students about online learning, thus it is difficult for students to accept this teaching mode in a short time, and the teaching effect cannot be effectively guaranteed. Online teaching requires students to have good learning habits, autonomous learning ability and sufficient learning motivation. Due to the space and time distance between teachers and students, 73.2% of teachers think that the biggest difficulty in online teaching is that they cannot control and manage their classroom easily and have no idea about students’ learning effect (Liu, 2020).

A research named Suggestion about Online Teaching shows a dramatic consensus between different teachers, that is students’ suggestion needs to be taken seriously. It also shows that the characteristics of online teaching put forward higher requirements for students’ learning ability and learning habits (Zheng, Xie & Wang, 2020). In traditional classroom, students can abide by classroom discipline and complete learning tasks under the supervision of teachers. Without teachers’ eyes, students tend to truancy and do not focus on class. The online teaching during the epidemic makes teachers realize deeply the importance of cultivating students' autonomous learning ability.

## **3. Reflections on Improving of Teacher’s Digital Literacy in Vocational School in the Post COVID-19 Era**

There is no doubt that the epidemic will eventually finish, and the reform of teaching methods is the new trend, “Online + offline” hybrid teaching will become the “new normal”. The deep integration of information technology and vocational education is not only the key work of vocational education reform all over the world including China, but also the inevitable trend of international vocational education. Exploring the digital literature of vocational education teachers in the post epidemic period is of far-reaching significance to the professional development of vocational teachers.

### **3.1 Technical Support — Accelerate the Improvement of Technical Construction Such as Network Platform and Online Services**

Technology is the foundation. Without the support of hardware and technology, any theoretical exploration on

online education will not work. The information technology situation and environment of school provide strong external support for online education. Some studies show that the stability and fluency of the network environment has a significant impact on the effectiveness of online teaching in addition to students' academic participation and teachers' teaching methods. Online teaching has a strong dependence on network stability. Technical factors such as network platform have become the second factor to improve online teaching (Bao, Chen & Wang, 2021). Moreover, digital resources and information security system of school have a significant positive correlation with the quality of teachers' information-based teaching and the level of students' information literacy. If the quantity and quality of computer and other hardware equipment in the school can meet teachers' and students' needs, they can use digital resources according to their need, so as to improve their ability of information technology equipment and promote the improvement of online teaching efficiency and quality. At the same time, falling into the dilemma of lack of guarantee of computer equipment and network conditions will put teachers and students in a disadvantageous position in the online teaching environment, so as to weaken the effectiveness of online teaching. Therefore, vocational schools should pay attention to the construction and increase the investment in the construction of information-based campus.

### **3.2 Teachers' Digital Literacy — Strengthen Teachers' Skills in Using High-Quality Digital Resources and Platforms**

It is found that teachers have a high sense of identity with the necessity of teaching reform in the digital environment; Teachers have the basic skills of using digital tools and technology is no longer the “gap barrier” that restricts teachers from carrying out online teaching; However, teachers still lack ability to carry out effective teaching under the background of “Internet + education”, which is still the core factor that restricts the development of online teaching (Han & Ge, 2018). Therefore, teachers should seize the opportunity to improve their online teaching ability. Colleges should help teachers adjust the adaptability of online courses at the three levels: learning support, curriculum structure and interactive teaching. Teacher training and the support of professional and technical teams are necessary. During the epidemic period, most of the online teaching courses only simply relocated the traditional courses to the network platform, and did not carry out corresponding adjustment for the online teaching situation. Teachers generally lack online teaching experience and educational technology team support. Therefore, colleges need to carry out corresponding course training and establish professional technology support teams to provide clear guidance for teachers in order to ensure the effectiveness of online teaching and organic integration with online teaching.

### **3.3 Students' Digital Literacy — Pay Attention to Developing Students' Digital Literacy**

Future education emphasizes the cultivation of digital literacy, autonomous learning and social participation. Firstly, colleges and universities should strategically improve students' autonomous learning ability and strengthen students' autonomous academic participation based on professional counseling. For example, a professional counseling center can provide students with consulting services in terms of time management and learning efficiency, and professional and targeted support services for students in need. Secondly, teachers' good digital literacy can be used as an example for students to develop digital literacy. Therefore, teachers should collective and joint research on teaching, such as reflecting on the problems of online teaching, paying attention to students' understanding of teaching objectives, the rationality of task division of learning groups, the innovation of teaching content. By improving teachers' digital literacy, students will learn from their teachers and will solve emergency in digital environment successfully.

### 3.4 Practical Community-Build a Practical Community of Online Teaching and Pay Attention to the Common Development of Teachers in Vocational Colleges

The value of “Peer Effect” to teachers’ development should be paid attention. Colleagues who are good at using new technology can help other teachers effectively. Therefore, an innovative teaching teams which do well in online teaching should share their experience with others. Secondly, practical community can play the exemplary role of high-performance teachers. They have a strong sense of self-confidence and work achievement and can quickly adapt to online teaching which form a demonstration effect on other teachers. Thirdly, we need to strengthen the online teaching training of front-line teachers, so that more teachers can overcome technical obstacles and experience the usefulness of online teaching, realizing the transformation from novice to excellent online teaching experts.

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